

Remarks

Claims 1-3 were pending in the subject application and currently stand rejected. By this amendment, new claims 4-10 have been added. Support can be found, at least, at Figures 4 and 5D. No new matter has been introduced by these amendments. Reconsideration and favorable consideration of the pending claims is respectfully requested in view of the following remarks.

Claims 1 and 3 are rejected under 35 U.S.C. §103(a) as being unpatentable over Tung *et al.* (U.S. 5,248,632) in view of Man (U.S. 5,533,635). Applicant respectfully traverses.

Tung *et al.* fails to teach or suggest an anti-fuse formed on the second contact plug in a second via hole of the second insulating layer and a third contact plug filling the second via hole and formed within the anti-fuse as specified by claims 1 and 3. Rather, Tung *et al.* teaches two methods of forming anti-fuse; both methods creating different structures from that which is claimed. The first method, described at col. 4, lines 16-44, involves etching a via through the insulating layers (30) to the lower metal layer (28), forming a TiW plug (34) on the exposed portion of the lower metal layer (28), oxidizing (36) the TiW plug (34), and forming an upper metal layer (40a) (*see* Figs. 3-4). The second method, described at col. 5, lines 18-46, involves depositing a layer of TiW (44), patterning and etching a TiW cylinder (46), depositing and etching back an interlevel oxide layer (48) to expose the surface of the TiW cylinder (46), oxidizing (50) the TiW cylinder (46), and forming an upper metal layer (54a) (*see* Figs. 5-9). In the first case, neither the “third contact plug” (40a) nor the anti-fuse element (36) are provided in the via hole, which is instead filled with the “second contact plug” (34). In the second case, neither the “third contact plug” (54a) nor the anti-fuse element (50) are provided in the “via hole” formed by the “second contact plug” (46). Therefore, Tung *et al.* fails to teach or suggest an anti-fuse **in a second via hole** and a third contact plug **filling the second via hole**.

Furthermore, Man does not cure this defect because merely interposing a TiW metal barrier layer between dielectric layer (30) and metal layer (40a) of Tung *et al.* does not move the metal layer (40a) into the second via hole and within the anti-fuse as recited by the claims.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of claims 1 and 3.

Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Tung *et al.* (U.S. 5,248,632) in view of Man (U.S. 5,533,635), and further in view of Madan *et al.* (U.S. 6,141,240).

Applicant respectfully traverses. The deficiencies of Tung *et al.* in view of Man have been discussed above with respect to the rejection of claim 1, from which claim 2 depends. Madan *et al.* does not cure those defects. Therefore, Applicant asserts that Tung *et al.*, Man, and Madan *et al.*, alone or in combination, cannot teach or suggest the subject invention of claim 2. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103(a) rejection of claim 2.

In view of the foregoing, Applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 or 1.17 as required by this paper to Deposit Account 19-0065.

Should any issues remain or should the Examiner believe that a telephonic conference with Applicant's attorney would be helpful in expediting prosecution of this application, the Examiner is invited to contact the undersigned.

Respectfully submitted,



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